

**TPF/Darwin  
Talk  
Photons from Giant Planets**

**Contrib**

**Abstract**

**# 356**

**Slowing Embedded Migration**

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Type I planetary migration, low mass planets embedded in their nascent disk, has been a continual problem for planet formation. Both linear theory and a limited number of numerical simulations have suggested that inward migration timescales are too rapid to allow for planetary growth. We present a series of highly resolved numerical simulations of planet-disk interaction. Here we concentrate on the effects of both a self-gravity treatment for the disk and non-linear instabilities initiated by the vorticity gradient generated by the planets spiral shocks. We show that while both these effects slow the planets migration, the non-linear interaction between the planet and the vortices generated by the fluid instability slows the migration sufficiently to allow for mass growth and gas capture.